



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/986,945

11/13/2001

Juan Mantelle

041457-0633

6420

22428 7590 03/13/2007

FOLEY AND LARDNER LLP

SUITE 500

3000 K STREET NW

WASHINGTON, DC 20007

EXAMINER

EBRAHIM, NABILA G

ART UNIT

PAPER NUMBER

1618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

03/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/986,945

Applicant(s)

MANTELLE ET AL.

Examiner

Nabila G. Ebrahim

Art Unit

1618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1618

DETAILED ACTION

Receipt of Applicant's remarks and amendments to the claims dated 12/07/2006 is acknowledged.

Status of Claims

Claims 1-22 are pending in the application.

Status of Office Action: Final

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- a) Claim 1 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites "below processing temperatures" the phrase renders the claim unclear because this processing temperature is not recited. Explanation is needed.
- b) Claim 1, and 5 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites "equal to or greater than the normal boiling points of the at least one low molecular weight drug". The meaning is vague since the drug is not known; there is no way to compare its boiling point.

Claim Rejections - 35 USC § 102

Art Unit: 1618

2. The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

a. Claims 1-6, and 10-21 remain rejected under 35 U.S.C. 102(b) as being anticipated by Miranda Jesus et al. WO 9300058 (Miranda).

Miranda teaches transdermal drug delivery system and more particularly, to a transdermal drug delivery composition wherein a blend of polymers is utilized to affect the rate of drug delivery from the composition. The composition comprises a blend of polymers, and a therapeutically effective amount of a drug or more, which amount may reach between 5-40% by weight; this percentage is within the percentage recited in claim 6 (page 2). In a preferred embodiment of the improved pressure-sensitive adhesive, the first polymeric adhesive material is a polyacrylate and the second adhesive material is a polysiloxane (page 6). The shear resistant of the acrylic polymer in a preferred embodiment of the invention, the multiple polymer adhesive system comprises a blend of an acrylic shear-resistant pressure-sensitive adhesive and a silicone pressure-sensitive adhesive (page 5). Miranda discloses that the transdermal drug delivery device may include a backing material and a release liner as is known in the art (page 3). The drug comprised in the transdermal system may be nicotine (page 7), and the pressure-sensitive adhesive composition of the type, which is suitable as a matrix for controlled release of a bioactive agent (page 5). Miranda also suggests a free base, free acid drug (claim 34). Instant claim 4 recites a shear resistance that reaches

Art Unit: 1618

100 hours, however, Miranda teaches the shear resistance of 99 hours which is almost the same value and also teaches that polyacrylate is preferably present in the pressure-sensitive adhesive composition in an amount ranging from about 2-96% by weight and the polysiloxane is present in an amount ranging from about 98-4%, and the composition according to Miranda comprises fillers, and excipients (page 6). The same steps of instant claim 17 are recited in (example 1) of Miranda who added the nitroglycerin was added as a solution in toluene mixed together with the polyacrylate. The resulting composition had the ingredient concentrations on a "dry" basis, that is, after removal of volatile process solvents.

Note that the molecular weight of nicotine is 162.23 g/mol which still reads on the amended claims as lower than 300 dalton.

Conclusion: claims 1-6, and 10-21 are anticipated by Miranda.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

b. ims 1-5, 7, 8, 10, 12, 14-21 are rejected under 35 U.S.C. 102(b) as being

anticipated by Pfister et al EP0524776

Pfister teaches a silicone pressure sensitive adhesive composition, which is compatible with drugs, excipients, co-solvents and skin penetration enhancers is disclosed which includes a cohesive strengthening agent. The adhesive is useful as a transdermal drug delivery device. A blend of polymers are used in the invention like siloxane polymers (page 3, line 10+), and acrylic acid polymers of high shear resistance that has molecular weights from about 1,000,000 to about 4,000,000 (page 5, lines 13+), nicotine-based drug, and co-solvent excipients (page 2, lines 13+). Note that instant claim 7 recite a molecular weight of about 600,000 to about 1,000,000. Shear values were measured by using a 4.5 lb. rubber roller and allowed to equilibrate for 20 minutes. The specimen is mounted into the jaws of the Instron and pulled at a speed of 0.5 cm/min. and the peak load required to shear and separate the laminate is recorded in kg (page 8, lines 14+, see also table C2), It is the position of the Examiner that since the ranges of the molecular weight of the acrylic polymers overlap at the 1,000,000 value then it is expected that the shear resistance values should be overlapping. With regard to instant claim 5, Pfister discloses that the liquids are allowed to evaporate in room temperature (see examples A and B), which makes the composition substantially free of water and solvents. Pfister also discloses a pressure sensitive adhesive sandwiched between a backing substrate and a release liner (figure 1), and the delivery device is a matrix-type for a bioactive agent or drug in place within a transdermal patch (see figure 2) having the sufficient tack and shear to remain in place under conditions of use. Tack, peel, and adhesion values are disclosed (page 7, lines 40+). The methods

Art Unit: 1618

recited in instant claims 17, and 21 is a conventional method comprising mixing polymer(s), drug(s) and solvent(s), forming a matrix then evaporating the solvent. The method is disclosed in example A, and B.

Conclusion: Claims 1-5, 7, 8, 10, 12, 14-22 are anticipated by Pfister.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pfister et al. EP 0524776 in view of Lee et al US 5284660.

Pfister has been discussed above. Pfister did not disclose the percentage of the drug used.

Art Unit: 1618

Lee teaches a device suitable for transdermal administration has a backing layer, which is not permeable to the agent to be delivered (col. 4, lines 10+). The delivered drug can be nicotine (col. 7, line 23); the amount of the drug is 40% of the dry composition (example 1, claims 13, 14, 19, and 20). In addition, it is noted that adjusting a specific transdermal dose of a drug is within a skilled artisan according to the condition it will be used for among many other factors while choosing between the different kinds of polymers recognized in the art to build a release-profile is also within the skills of an artisan unless documented by unexpected data results.

Accordingly, it would have been obvious to one skilled in the art at the time the invention was made to combine the knowledge of Pfister with the dosage disclosed by Lee, the motive would be the disclosure of Pfister that his invention provide a transdermal pressure sensitive with having the sufficient tack and shear to remain in place under conditions of use.

Response to Arguments

1. Applicant's arguments filed 12/07/2006 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 112

Applicant argues that: that "processing temperatures" are the temperatures at which the transdermal compositions are processed and that this is sufficient to render the claim clear.

To respond: It is noted that the expressed definition does not render the claim definite since the claims do not recite the specific materials used in the claimed invention such

Art Unit: 1618

as the active agent and/or the adhesive polymers. In addition using "below processing temperature" or "equal to or greater than the boiling points of the at least one low molecular weight drug" adds to indistinctness of the claim since Applicant compares to an unknown value which is not sufficient to compare to the prior art.

Claim Rejections - 35 USC § 102

Applicant argues that: Miranda et al. does not anticipate the claimed invention because it does not disclose a transdermal drug delivery system comprising a blend of a) polymers; b) one or more drugs at least one of which is a low molecular weight. The office action fails to identify any particular polymer described as "high shear resistant acrylic based pressure-sensitive adhesive polymer".

To respond: Miranda uses the same drug recited in the instant claims "nicotine", and the same blend of polymers recited in the instant claims "polyacrylate and polysiloxane" to achieve the same result of having a transdermal drug delivery system. The reference does not have to describe the ingredients of the composition in the same words which Applicant uses.

Applicant argues that: The Office alleges that Miranda et al. discloses a similar shear stress to the instant claims.

To respond: Miranda teaches that transdermal drug delivery system wherein drug-loading of a multiple polymer adhesive system may be selectably varied without adverse effects on drug delivery rate and adhesive properties, such as adhesion, tack, and shear resistance and Fig. 6 shows that graphical representation of average estradiol flux through cadaver skin in vitro from 22 to 99 hours -which means that the

Art Unit: 1618

polymer has high shear- for a multiple polymer transdermal adhesive system comprising various weight ratios of polyacrylate and polysiloxane. Instant claims recite that the shearing resistance which is a functional property of "a high shear resistant acrylic-based pressure-sensitive adhesive polymer", again the claim does not show how high or give a specific value, accordingly, the disclosure of Miranda reads on these claims especially that Miranda teaches also that the concentration by weight of the drug in the dermal composition is preferably about 0.3 to about 50% (this range encompass the range recited in the instant claims), more preferably about 0.5 to about 40 percent, and even more preferably about 1.0 to about 30 percent. Irrespective of whether there is high-loading or low-loading of the drug into the dermal composition, the multiple polymer adhesive system of the present invention can be formulated to maintain acceptable shear, tack, and peel adhesive properties.

Applicant argues that: claims 2-18 recite that the pressure-sensitive adhesive transdermal drug delivery system includes one or one or more high shear resistant acrylic-based polymers having a shear resistance which is greater than or equal to 50 hours at 8 pounds per square inch and 720 Fahrenheit. Claims 19-21 recite that the pressure-sensitive adhesive transdermal drug delivery system includes one or one or more high shear resistant acrylic-based polymers having a shear resistance which is greater than or equal to 50 hours at 4 pounds per square inch and 720 Fahrenheit. The '058 application does not describe compositions comprising such polymers.

To respond: since the prior art used the same polymers, the properties disclosed in the instant claims and not disclosed in the prior art are inherent.

Art Unit: 1618

Applicant argues that: Miranda application discloses compositions which include acrylic-based polymers such as Duro-Tak 80-1194, Duro-Tak 80-11196, Duro-Tak 80-1197, Gelva 737, and Gelva 738. However, none of these acrylic based polymers has a shear resistance that is greater than or equal to 50 hours at 4 pounds per square inch and 72° Fahrenheit, as set forth in claims 19-21, or greater than or equal to 50 hours at 8 pounds per square inch and 720 Fahrenheit as set forth in claims 2-18. Thus, the '058 application does not anticipate claims 2-21.

To respond: Applicant is contradicting his own disclosure. Parent patent US 6,316,022 of Mantelle et al. (same inventive entity), discloses an invention, where in a preferred embodiment, the high shear resistant polymer has a shear resistance which is .gtoreq. 50 hours at 4 pounds per square inch (psi) and 72° F, more preferably .gtoreq. 100 hours at 4 psi and 72.degree. F., even more preferably .gtoreq. 100 hours at 8 psi and 72° F (col. 3, lines 52+). The polymers used in the 6,316,022 invention include the polyacrylate adhesives sold under the trademarks Duro-Tak 80-1194, 80-1196, 80-1197, 87-2287, 87-2516 and 87-2852 by National Starch and Chemical Corporation, Bridgewater, New Jersey. Other suitable acrylic adhesives are those sold under the trademarks Gelva-Multipolymer Solution GMS 737, 788, 1151 and 1430 (Monsanto; St. Louis, Mo.) (col. 8, lines 31+). Accordingly, Applicant used the same trademarks of polymers used by Miranda in his patent 6,316,022 and disclosed that the shear resistance of these polymers is .gtoreq. 50 hours at 4 pounds per square inch (psi) and 72.degree. Fahrenheit (.degree. F.), more preferably .gtoreq. 100 hours at 4 psi and

Art Unit: 1618

72.degree. F., even more preferably .gtoreq.100 hours at 8 psi and 72° F. This is a clear contradiction to the arguments above.

Applicant argues that: While EP '776 mentions the use of a "carbomer" in its silicone-based pressure sensitive adhesive, the "carbomer" is not a "high shear resistant acrylic-based pressure sensitive adhesive polymer," as recited in claim 1. Instead, the carbomer is used as a "cohesive strengthening agent" (e.g., a filler) and is dispersed in the silicone pressure-sensitive adhesive to increase cohesive strength. See EP '776, page 5, lines 29-30.

To respond: the carbomer used is a polyacrylic acid which is an acrylic-based polymer. In addition, Pfister teaches that the desirable values of shear range between 15-25 kg. As shown in Table C2, values ranged from 18.0 (+/- 0.8) to 23.9 (+/- 0.0) kg and were within the acceptable range. Finally, the "high shear" polymer recited in the instant claims is explained in the specification as "The polyacrylate polymer can be any of the homopolymers, copolymers, terpolymers, and the like of various acrylic acids or esters" [0039].

Applicant argues that: Claims 2-21 are distinguished over EP '776 because EP '776 fails to teach or suggest an acrylic-based polymer having a shear resistance of 50 hours at 8 pounds per square inch and 72° Fahrenheit, as recited in claims 2-18, or a shear resistance of 50 hours at 4 pounds per square inch and 720 Fahrenheit, as recited in claims 19-21. Although the Office Action alleges that the "carbomer" reads on the recited "high shear resistant acrylic-based polymer," that allegation is pure speculation based solely on the molecular weight of the carbomer.

Art Unit: 1618

To respond: Pfister comprised an acrylic-based polymer to achieve the same goal desired by Applicant, the resulting shear resistance is inherent. In addition, applicant's view is not accompanied by any values of the shear resistance of the carbomer recited.

Applicant argues that: The Office Action alleges that "since the ranges of the molecular weight of the acrylic polymers overlap at the 1,000,000 value then it is expected that the shear resistance values should be overlapping." However, a high molecular weight does not necessarily correlate with high shear resistance. As taught in the specification "[t]he shear resistance of the polymer is generally related to the molecular weight of the polymer." Specification at page 23, 1 st full paragraph (emphasis added). In other words, shear resistance does not exactly correlate to the molecular weight of the polymer, and it cannot be assumed that polymers with identical molecular weights exhibit identical shear resistance.

To respond: Instant application discloses clearly that:

[0074] The shear resistance of the polymer is generally related to the molecular weight of the polymer. A polymer having a weight average molecular weight generally in the range of about 600,000 to about 1,000,000 daltons, preferably about 700,000 to about 900,000 daltons, more preferably about 750,000 to about 850,000 daltons can be used in the present invention. However, any polymer which has a sufficient shear resistance as defined above can be used in the present invention, regardless of molecular weight.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1618

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nabila G. Ebrahim whose telephone number is 571-272-8151. The examiner can normally be reached on 8:00AM-5:00PM.

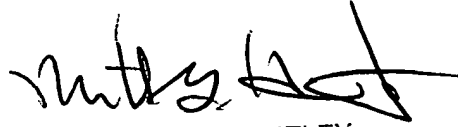
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Hartley can be reached on 571-272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nabila Ebrahim

5/26/06



MICHAEL G. HARTLEY
SUPERVISORY PATENT EXAMINER